



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/659,273	09/11/2003	Pierre Etienne Bindschedler	0514-1121	5627
<div>466 7590 06/04/2007</div> <div>YOUNG & THOMPSON 745 SOUTH 23RD STREET 2ND FLOOR ARLINGTON, VA 22202</div> <div>EXAMINER RUDDOCK, ULA CORINNA</div> <div>ART UNIT PAPER NUMBER 1771</div> <div>MAIL DATE DELIVERY MODE 06/04/2007 PAPER</div>				

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/659,273	Applicant(s) BINDSCHIEDLER ET AL.	
	Examiner Ula C. Ruddock	Art Unit 1771	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5-8, 13-15 and 17-24 is/are pending in the application.
- 4a) Of the above claim(s) 7 and 8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 6, 13-15, and 17-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The Examiner has carefully considered Applicant's remarks filed February 1, 2007. In view of the present response, the previously set forth rejections have been withdrawn. However, after an updated search, additional prior art has been found which renders the invention as currently claimed unpatentable for reasons herein below.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2, 5, 13-15, and 17-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rajalingam et al. (US 6,271,305) in view of Iwata et al. (US 5,912,193).

Rajalingam et al. disclose bituminous polyurethane elastomeric network compositions as coatings for roofing and other applications. The polyurethane prepolymers are generated within a matrix of bituminous material such as asphalt (col 1, ln 19-21). The thermoplastic polyurethane is obtained from an isocyanate with a functionality of two or greater (col 6, ln 21-25) and polyether polyols and polyester polyols (col 5, ln 66-67). It should be noted that Applicant, on page 6, lines 30-31 of the present specification, describes polyester and polyether polyols as preferred polyols. The polyols can also have a functionality of at least 2 (col 6, ln 13). The bitumen is present in the amount of 40-60% (col 7, ln 65-67). The bitumen and polyols/isocyanate ratio is preferably 50:50 (col 9, ln 27-28). It should also be noted that the aromatic oil, filler, and catalyst ingredients are optional in

the claims, as currently written, since the amounts of these materials range from 0%. It should be noted that the "prefabricated sealing membrane" limitation in the preamble is being considered a method limitation. Furthermore, it has been held that the method of forming a device is not germane to the issue of patentability of the device itself. Therefore, the "prefabricated" limitation has not been given patentable weight. Rajalingam et al. disclose the claimed invention except for the teaching that the thermoplastic polyurethane is obtained from a diisocyanate of a functionality substantially equal to 2, a polyol of functionality substantially equal to 2, a chain elongation agent, that the polyurethane molecules are free of double carbon-carbon bonds, and that the polyols are free of ethylene linkages.

Iwata et al. (US 5,912,193) disclose thermoplastic polyurethanes obtainable by reacting a polyester-polyol that has hydroxyl groups of from 2.01 to 2.08 per one molecule (i.e. a functionality substantially equal to 2), an organic diisocyanate, and a chain extender. The thermoplastic polyurethanes are used to create laminates that have excellent heat resistance, friction melt resistance, and cold resistances (abstract). The laminates include the thermoplastic polyurethane on fibrous base layers (col 13, ln 62-63). It should be noted that Applicant, on page 6, lines 30-31 of the present specification, describes polyester polyols as a preferred polyol. Therefore, the polyester polyol of Iwata et al. would be free of ethylene linkages, as required by the present invention. The diisocyanate can be diphenyl methane diisocyanate, MDI (col 7, ln 53-61; col 19, ln 64). It should be noted that on page 6, lines 27-30 of the present specification, Applicant discloses their preferred diisocyanates to be MDI. Therefore, the MDI of Iwata would have a functionality substantially equal to 2, as required by the present claims. The chain extenders used to make

Iwata's thermoplastic polyurethane include 1, 4-butanediol and hexanediol (col 8, ln 7-16). It should be noted that on page 7, lines 5-9 of the present specification, Applicant discloses their preferred chain lengtheners to be 1, 4-butanediol and hexanediol. Furthermore, because the same components described by Applicant are being used to make Iwata's thermoplastic polyurethane, the polyurethanes are free of double carbon-carbon bonds, as required by the present claims. It would have been obvious to one having ordinary skill in the art to have used the components that make up Iwata's thermoplastic polyurethane in the composition of Rajalingam et al., motivated by the desire to create a composition that has excellent heat resistance, friction melt resistance, cold resistance, hydrolysis resistances, and excellent melt-moldability. Finally, because Iwata and Rajalingam et al. include the same materials in the composition as Applicant's present invention, the modified bituminous binder would also be capable of being softened by reheating and would recover its properties after subsequent cooling and would be highly stable to UV exposure.

Rajalingam et al. and Iwata et al. disclose the claimed invention except for the teaching that the thermoplastic polyurethane has between 10-40% hard segments.

It should be noted that the amount of hard segments in polyurethane is a result effective variable. The amount of hard segments directly affects the moldability and durability and the strength of the polyurethane. Therefore, it would have been obvious to one having ordinary skill in the art to have used a thermoplastic polyurethane having between 10-40% hard segments, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980). In the present

invention, one would have optimized that amount of hard segments motivated by the desire to create a thermoplastic polyurethane with the desired strength, durability, and moldability.

4. Claims 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rajalingam et al. (US 6,271,305) and Iwata et al. (US 5,912,193), as shown above, in view of Terry et al. (US 5,981,010). Rajalingam et al. and Iwata et al. disclose the claimed invention except for the teaching that the composition further comprises additives that improve adhesion and that the filler comprises talc.

Terry et al. disclose polyurethane-modified bitumen coating compositions. The composition further comprises a filler material (abstract). The composition also comprises aromatic oil (col 2, In 40-41). The filler material can be talc in an amount from 0-40% (col 3, In 19-25). Tackifiers are also used in the composition (col 5, In 18), which the Examiner is equating to Applicant's additives that improve adhesion of claim 3. It would have been obvious to one having ordinary skill in the art to have used the tackifier and talc material of Terry et al. in the composition of Rajalingam et al. and Iwata et al., motivated by the desire to create a composition that has increased tackiness and is a protective coating.

Response to Arguments

5. Applicant's arguments with respect to claims 1-3, 5, 6, 13-15, and 17-24 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ula C. Ruddock whose telephone number is 571-272-1481. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel H. Morris can be reached on 571-272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

UCR

Ula C. Ruddock
Ula C. Ruddock
Primary Examiner
Tech Center 1700